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EXAMINER

MARIAM, DANIEL G

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/915,204

Applicant(s)

DIALAMEH ET AL.

Examiner

DANIEL G. MARIAM

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

***Response to Arguments***

1. Applicant's arguments, see pp. 6-10, filed on May 18, 2005 with respect to the rejection(s) of claim(s) 1-7 under 35 U.S.C. 102 and 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of McDowell, et al and Wiskott, et al which will be discussed in the rejections below.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDowell, et al. (5,905,568) in view of Wiskott, et al. (Face Recognition by Elastic Bunch Graph Matching).

With regard to claim 1, McDowell, et al. (hereinafter "McDowell") provides left and right camera images, i.e., camera images obtained by cameras 18 and 20 respectively, obtained of the feature, i.e., tracer particle/s (See for example, Fig. 1); locating the feature in the left camera image and in the right camera image using (bunch graph) matching, i.e., stereo matching, and determining the feature location, i.e., locations of the particles, in multiple dimensions including depth based on the feature locations in the left camera image and the right camera image (See for example, col. 5, lines 16-25; and Fig. 1). While McDowell teaches the use of a stereo matching to find locations of the particle images, McDowell does not expressly call for matching the images using bunch graph matching. However, Wiskott et al. (section 2.3, pp. 3-4)

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teaches this feature. McDowell and Wiskott, et al are combinable because they are from the same field of endeavor, i.e., image processing and/or image matching (See the Abstract). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Wiskott, et al. with McDowell. The motivation for doing so would at least improve the matching operation, by attaching a plurality of jets to create a bunch graph, and thereby accurately identifying locations of particle images in the pair of images. Therefore, it would have been obvious to combine Wiskott, et al. with McDowell to obtain the invention as specified in claim 1.

Claim 2 is rejected the same as claim 1. Thus, argument similar to that presented above for claim 1 is applicable to claim 2. Claim 2 distinguishes from claim 1 only in that it recites locating the feature in the left camera image and in the right camera image using image analysis based on wavelet component values generated from wavelet transformations of the camera images. However, Wiskott, et al. (See section 2.1, pp. 1-2) teaches the feature. Therefore, it would have been obvious to one having ordinary skill in the art to incorporate the teaching as taught by Wiskott into the system of McDowell, and to do so would at least improve the accuracy of finding the particle/s (or nodes) locations (See page 1, right col., lines 6-9).

With regard to claim 3, wherein the wavelet transformations use Gabor wavelets (See for example, page 2, left col., 2<sup>nd</sup> paragraph of Wiskott, et al).

Claim 4 is rejected the same as claim 2 except claim 4 is directed to an apparatus claim. Thus, argument similar to that presented above for claim 2 is equally applicable to claim 4.

Claim 5 is rejected the same as claim 3 except claim 5 is directed to an apparatus claim. Thus, argument similar to that presented above for claim 3 is equally applicable to claim 5.

Claim 6 is rejected the same as claim 2. Thus, argument analogous to that presented above for claim 2 is equally applicable to claim 6. Claim 6 distinguishes from claim 2 only in that it recites the limitation providing first and second spaced-apart camera images of the feature. McDowell (for example, Fig. 1A) further teaches this feature, where image/s generated by camera 18 and image/s generated by camera 20 are indeed spaced apart from each other.

Claim 7 is rejected the same as claim 3. Thus, argument similar to that presented above for claim 3 is equally applicable to claim 7.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Number: 6,516,099..

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G. MARIAM whose telephone number is 571-272-7394. The examiner can normally be reached on M-F (7:00-4:30) FIRST FRIDAY OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BHAVESH M. MEHTA can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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DANIEL G MARIAM  
Primary Examiner  
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August 9, 2005